Blood & Bugs 2025

ABC of Anaemia

- 1. Introduction

What is Anaemia?

Anaemia is a condition characterized by a decrease in the number of red blood cells or the haemoglobin concentration in the blood, resulting in reduced oxygen-carrying capacity. It is not a disease but a manifestation of an underlying disorder.

Importance of Early Recognition

Early detection prevents complications such as developmental delays in children, fatigue, reduced work capacity in adults, and poor pregnancy outcomes. Timely management improves quality of life and reduces health burdens.

Global and Indian Prevalence

Global: Approximately 25% of the global population is anaemic.

India: NFHS-5 (2019-21) data reveals:

7% women (15–49 years)

7% children under 5

4% men (15–49 years) are anaemic.

- 2. A – Awareness

A1. Definition & Classification

WHO Definition

Hb <13 g/dL in adult men

Hb <12 g/dL in non-pregnant women

Hb <11 g/dL in pregnant women and children <5 years

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Classification by Morphology

1. Microcytic Hypochromic Anaemia — e.g., Iron deficiency

2. Normocytic Normochromic Anaemia — e.g., Acute blood loss, chronic disease

3. Macrocytic Anaemia — e.g., B12 or folate deficiency

A2. Causes of Anaemia

Nutritional Deficiencies:

Iron

Vitamin B12

Folate

Blood Loss:

Acute: trauma, surgery

Chronic: GI bleed, menorrhagia

Hemolysis:

Inherited (e.g., thalassemia, sickle cell)

Acquired (e.g., autoimmune haemolysis)

Bone Marrow Suppression:

Aplastic anaemia

Malignancy

Anaemia of Chronic Disease:

CKD, infections, inflammatory diseases

A3. Risk Groups

Children: Due to rapid growth and inadequate intake

Pregnant Women: Increased iron demands

Elderly: Co-morbidities and poor absorption

Adolescents (especially girls): Menstrual blood loss and growth spurts

- 3. B – Basic Evaluation

B1. Clinical Signs and Symptoms

General: Fatigue, weakness, breathlessness

Specific:

Pallor of conjunctiva, nails

Koilonychia (spoon nails)

Glossitis, angular stomatitis

Pica (eating clay, starch)

Irritability and poor attention in children

B2. Clinical Examination Checklist

Pallor Sites: Palpebral conjunctiva, tongue, palms, nailbeds

Vitals: Pulse rate (tachycardia), BP (postural drop)

Cardiac: Systolic murmurs

Abdominal: Splenomegaly, hepatomegaly, signs of liver disease

B3. Laboratory Investigations

CBC: Hb, RBC count, MCV, MCH, RDW

Peripheral Smear: Cell morphology

Iron Studies: Serum ferritin, serum iron, TIBC

Vitamin Levels: B12, Folate

Others: Reticulocyte count, LDH, ESR, CRP if needed

- 4. C – Correction & Care

C1. Treatment Principles

Nutritional Supplements:

Iron (oral preferred first)

Vitamin B12, Folate

Parenteral Therapy:

IV iron in severe or malabsorptive cases

Blood Transfusion:

Only when Hb <7 or symptomatic

Cross-matching, infection screening mandatory

Address Underlying Cause:

Deworming, treat GI bleeding, manage CKD

C2. Dietary Guidance

Iron-Rich Foods:

Heme: Liver, meat, fish

Non-Heme: Green leafy vegetables, pulses, jaggery

Absorption Enhancers:

Vitamin C (citrus, amla)

Absorption Inhibitors:

Tea, coffee, calcium-rich foods (avoid near iron intake)

Counselling:

Emphasize adherence, explain timing, side effects

C3. Monitoring and Follow-up

Reticulocyte response: within 5–7 days

Hb Rise: ~1 g/dL every 2 weeks if compliant

Red flags: No response in 4 weeks → investigate further

- 5. Special Considerations

Anaemia in Pregnancy

Increased risk of preterm birth, low birth weight

Daily iron-folic acid supplementation

Deworming, diet counselling

Anaemia in Children <5 Years

Nutritional cause common

Poor feeding, delayed milestones

Supplementation + dietary correction

Anaemia of Chronic Disease

Common in TB, CKD, HIV, RA

Treat underlying disease

Avoid iron overload if ferritin is high

Hemolytic Anaemia (Brief)

Jaundice, splenomegaly, high LDH

Types: Thalassemia, Sickle Cell, G6PD deficiency

Diagnosis: Retic count ↑, Coombs test

Iron Overload

Seen with repeated transfusions or excessive parenteral iron

Monitor serum ferritin

Use chelators if needed (Desferrioxamine)

- 7. **Take-Home Messages**

A–B–C approach offers a structured view of anaemia

Awareness is key to prevention and early detection

Basic evaluation ensures timely and accurate diagnosis

Correction with appropriate therapy restores health

Ayurveda offers supportive and long-term rasayana therapies

- **8. References**

WHO Anaemia Guidelines (2020)

National Iron Plus Initiative (NIPI), Govt. of India

API Textbook of Medicine

Nelson's Textbook of Pediatrics